

REMARKS/ARGUMENTS

Re-examination and favorable reconsideration in light of the above amendments and the following comments are respectfully requested.

Claims 11 - 22 are pending in the application. Currently, all claims stand rejected.

By the present amendment, claims 11, 13 and 14 have been amended; and claim 21 has been cancelled without prejudice.

In the office action mailed September 30, 2010, claims 11 - 21 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S.P. 6,332,029 to Azima et al., "Dolby Stereo Technical Guidelines for Dolby Stereo Theaters", and further in view of U.S.P. 5,109,423 to Jacobson et al. There was no prior art rejection of claim 22.

The foregoing rejection is traversed by the instant response.

Claim 11, the sole independent claim in the application, is directed to a system for the projection of cinematographic works or digital works with sound with at least one sound channel, comprising: a cinema projection room; a screen within said cinema projection room; at least one sound channel comprising at least one woofer for a base side of said at least one sound channel and at least one medium/treble speaker; the screen being a non-perforated screen; each said woofer being positioned behind said screen; the at least one medium/treble speaker comprising a flat sound transducer placed behind said screen in relation to a direction of projection and against the screen; said at least one woofer and said at least one sound transducer creating sound coming from the screen itself; and an extreme treble speaker placed above said screen and at least one

additional treble speaker being disposed on a periphery of the screen.

With regard to the rejection under 35 U.S.C. 103(a), it is submitted that the references taken alone or in combination with each other do not teach or suggest the features of amended claim 11. The approach taken by the primary reference to Azima is quite different from the approach taken by the system of the present invention. First, Azima is positioning on the resonance while the system of the present invention is positioning precisely out of it. In Azima's abstract, Azima says "acoustic device including a member extending transversely of its thickness and capable of sustaining bending waves at least over . . ." Further, Azima claims a distribution of resonant modes of its natural bending wave vibration. Azima is exciting the material according to its natural resonance modes to reproduce the target sound. In the present invention, the inventors seek to work outside of the resonance modes. For example, the sound transducer in the present invention is used from 500 to 5000 Hz when its resonance mode is, in all cases, below 300 Hz. When using Azima, you control neither the distortion nor the directivity, which depends on the materials which are being used and excited. Applicants have found that in a cinema theater, it is necessary to control the directivity for screen speakers (minimum 60 degrees horizontally). With the present invention, one is able to control distortion and directivity by choosing a proper screen and surface and proper cutoff frequencies. The instant invention provides a new solution for directivity control, a problem which is recognized by the cited Dolby document. Most notably, Dolby does not recognize either the construction of the sound system presented in claim 11 and/or the frequencies which are set forth in claims 19 and 20.

Further, with regard to Azima, the technology disclosed therein needs to exploit the largest possible surface of the material to resonate. The modus operandi therein involves the use of a large area, leading inevitably to a highly directional, so one winds up with a small listening area. In the present invention, one is able to get the widest listening area possible, meaning that everywhere you place yourself in the theater you get the best understanding of the connection between the sound and image happening on the screen.

Without the addition of satellites and the separation of frequencies for the dedicated high frequencies, Azima's solution is non-operative in the film industry because one does not reach the performance in high frequency. In any cinema theater, it is important to avoid the sweet spot area (only a tiny point correct in the room) and ensure greater coverage regardless of any position in the room. Again, Azima's focus is far different from that of the present invention.

It should also be noted that side panels providing the sound are provided. Azima refers to panels (114 -115) from one hand to provide sound, and on the other hand, they use a rigid screen (32) to provide projection. Azima also precises that these panels can be hinged against the primary panel screen when not in use (see col. 46, lines 40 - 41). When Azima speaks of the possibility to apply a film, it is only for panels (114-115) (see column 46, lines 47 - 48). In the present invention, the screen is basically a film structural and non-decorative, commonly PVC screen. It is on such a screen that the principle of the present invention for providing sound applies. Among the benefits of the present invention is that a non-perforated screen is used that nearly matches the width of the room and that the sound is coming not from the side of the image but from

the image and the moviegoer gets the best connection between the sound and image happening on the non-perforated screen.

Azima refers to the woofer 35 as being placed on the sides of the room and not behind the screen. In the present invention, there is a woofer for each channel. Each woofer is physically located behind the screen. Yet another difference with Azima is that the present invention does not have a separate channel. The woofer is in the same channel providing therefore a better clarity for each channel and a better perceived separation between the different channels, while Azima may mix them all.

Given the differences in approach and goals, it would not be obvious to one of ordinary skill in the art to modify Azima to have the construction set forth in claim 11. To make such a modification is to destroy Azima for its intended purpose and functioning.

The Examiner on page 3 says that the use of an extreme treble speaker was known in the art of movie theater audio. This affirmation is not exact. It sometimes happens to put loudspeakers around the screen in a movie theater when it is not perforated as Jacobson refers to (second line of Abstract), but never to put only extreme treble speaker. If sometimes loudspeakers are placed around the screen it is only to compensate the impossibility to put the loudspeaker behind the screen because of the absence of perforations. As an additional element of proof, Jacobson et al. describes a loudspeaker around the screen for bass: med; treble which bandwidth starts from 150 Hz according to figure 6. In the present invention, the bandwidth starts from 5000 Hz. The benefits from this are the transducer and the woofer are at the same position behind the screen, so the bass and medium treble sounds come from exactly

the same side of the screen leading to a better coherence between the happening of the bass and medium and treble to the ears of the moviegoer. Further, as everything is behind the screen, the system of the present invention does not lose space in the room, so it increases sound better for the number of seats.

The examiner says that Jacobson discloses extreme treble speakers disposed on a periphery of the screen. This statement is incorrect. What is disclosed is a bass, med and treble loudspeaker (see Fig. 6, very low frequencies under 150 Hz. (references 30 and 36)) and medium to 600 Hz (references 35, 37, 39, and 43) and **not an extreme treble speaker (5000 Hz)**. Jacobson clearly shows the bass medium loud speaker (39) couple to a midrange treble loud speaker (45). Fig. 6 shows that the loud speaker 45 is characterized as an HF driver, which means high frequency, and not very high frequency. Further with regard to Jacobson, the woofers (6) are arranged below the screen and not behind it. Above the screen is a speaker of low/medium/high and not a very high frequency speaker as evidenced by Figs 1, 2 and 5 which shows that the loudspeaker is constituted of a bass midrange speaker (39) and a med and treble speaker (45). Figure 6 gives the details of the cutoff frequencies for the speakers.

As can be seen from the foregoing discussion, the use of extreme treble speakers in the system of claim 11 is both novel and inventive. The self physical nature of the extreme treble sound frequencies makes that these frequencies are extremely directive and by being outside of the screen it enables one to tune a direction angle different than one of the other speakers to better direct this sound to the seats in the room. Yet another benefit is that when sounds come from a surround source

to the screen source, it provides a better spatial continuity of the motion of the sound.

For these reasons, the subject matter of claim 11 is not rendered obvious by the cited and applied references.

Claims 12 - 20 and 22 are allowable for the same reasons as claim 11 as well as on their own accord.

With regard to the Examiner's comments in paragraph 4 of the office action, the Examiner is incorrect when he says that Azima further discloses that the medium/treble transducers (9) is disposed substantially above the at least one woofer (35). The medium/treble transducers are on the sides of the room (see Fig. 57, items 3 being in front of the screen and on each side of the room). One of the benefits of placing the medium/treble transducer behind the screen as in the present invention, the transducer and the woofer are at the same position behind the screen, so the bass and medium treble sounds come from exactly the same side of the screen leading to a better coherence between the happening of the bass and medium and treble to the ears of the moviegoer.

With regard to paragraph 5 in the office action, the Examiner writes that Jacobson discloses extreme treble speakers. As discussed above, Jacobson makes no such disclosure.

With regard to paragraph 6, Azima does not disclose two lateral channels disposed behind the screen and as discussed above Jacobson does not disclose extreme treble speakers.

With regard to paragraph 7 of the office action, the Examiner takes official notice that it would not have been beyond the capabilities of ordinary skill to place the speakers at the same level of the flat transducers for an optimal acoustical effect. The Examiner is hereby requested to provide Applicants with a prior art reference which shows that one of

ordinary skill in the art would have had such a capability, i.e. knowledge which would allow them to recognize that one would want to place the speakers at the same level of the flat transducers. Since Jacobson does not disclose the use of extreme treble speakers, it is not possible that Jacobson teaches anything about an optimal orientation of extreme treble speakers. Further, it should be noted that there is no disclosure in any of the references of positioning the medium treble lateral channel behind the screen and not at the periphery and/or arranging the extreme/treble speakers at the periphery of the screen.

With regard to the Examiner's comments in paragraph 8, as discussed hereinabove, in Azima, the lateral channel does not form part of the screen but part of the side panels (114 and 115). Further, these panels can be hinged against the primary panel screen in Azima, when not in use and can have a decorative film. In the present invention, the lateral channels are behind the screen. Once again with regard to the Examiner's comments about Jacobson, this reference does not disclose the use of extreme treble speakers.

With regard to the Examiner's comments in paragraph 9 of the office action, please see Applicants' prior comments about Jacobson not teaching the use of extreme treble speakers. Jacobson refers to a bass med treble loudspeaker.

With regard to paragraph 10 of the office action, Jacobson does not disclose a central high channel. Jacobson refers to frequencies cutoff (typical configuration for a channel in the terms of filters, amplifiers and speakers) in Fig. 6. Further, please see Applicant's prior comments about Jacobson not teaching the use of extreme treble speakers. Once again, with respect to the official notice taken by the Examiner, the

Examiner is requested to provide a reference which shows that it was within the capabilities of one of ordinary skill in the art to simply provide another high frequency channel and speaker in order to gain more output from the system. Further, the Examiner should provide a reason why one would do that given the aims of Azima's system. The mere fact that someone could do something is not determinative of obviousness. The reason for doing it must be tied to accomplishing the goals of the primary reference, not to redesign the primary reference given the roadmap provided by Applicants. Further, it should be noticed that Applicant's use of the claimed feature provide a central low channel in order to enable positioning of sounds in the screen (central bottom) and coming from behind the screen for med and treble frequency of the transducer. The benefits of this feature is that, for example, when a horse is riding across the screen, the sound of the hoof comes from the ground and therefore from the bottom of the image.

With regard to paragraph 11 of the office action, the Examiner is incorrect when he says that Azima, Dolby and Jacobson are silent as to the exact frequency range of the transducers. Jacobson itemizes in Fig. 6 the configuration of the cutoff frequencies. With respect to the official notice taken by the Examiner, the Examiner is requested to provide a reference which shows that providing a suitable frequency range in a speaker system would have been well known. Further, the Examiner is requested to provide a reference which shows that it was known to use the claimed frequencies. As pointed out by Applicants, the selection of the frequencies is more than a mere design choice. The claimed frequencies provide a sound in a movie theater which was previously unknown. As discussed above, Azima is incapable of providing such a sound. Further, Dolby

and Jacobson do not recognize how to create the sound effect Applicants create by using the claimed frequencies.

For the foregoing reasons, the instant application is believed to be in condition for allowance. Such allowance is respectfully solicited.

Should the Examiner believe an additional amendment is needed to place the case in condition for allowance, he is hereby invited to contact Applicant's attorney at the telephone number listed below.

A request for a three month extension of time is enclosed. The Director is hereby authorized to charge the two month extension of time fee in the amount of \$1,110.00 to Deposit Account No. 02-0184.

If any additional fees are required in connection with this case, it is respectfully requested that they be charged to said Deposit Account No. 02-0184.

Respectfully submitted,

Pierre Vincent

By/Barry L. Kelmachter #29999/
Barry L. Kelmachter
BACHMAN & LAPOINTE, P.C.
Reg. No. 29,999
Attorney for Applicant

Telephone: (203) 777-6628 ext. 112
Telefax: (203) 865-0297
Email: docket@bachlap.com

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